

**DRAFT 6/15/12**

**Application No.11-52-0075-P**

***Finding of Fact***

The Michigan Department of Environmental Quality (MDEQ) has initiated review of permit application # 11-52-0075-P

The application was submitted under authority of:

Part 301, Inland Lakes and Streams, Public Act 451 of PA 1994.

Part 303, Wetland Protection, Public Act 451 of PA 1994.

Part 31, Floodplain Regulatory Authority, found in Water Resources Protection, of Natural Resources and Environmental Protection Act, 1994 PA 451 as amended.

After due consideration of the permit application, on-site investigation, and review of other pertinent materials, the MDEQ finds:

- The Marquette County Road Commission (CRC) is the applicant for the proposed road construction project, referenced as CR-595. Within the application for permit, the CRC describes the purpose of the project as:

*To construct a primary county north-south road that 1) connects and improves emergency, commercial, industrial and recreational access to a somewhat isolated but key industrial, commercial and recreational area in northwest Marquette County to US-41; and 2) reduces truck travel from this area through Marquette County population centers.*

- The proposed road construction as proposed in the recent submittal of a revised application, would directly impact ~~2584~~ 4.32 acres of wetlands, involve 22 stream crossings, 7 of which would be new crossings where there is no existing road, and involve activities within state regulated floodplain areas of existing streams.
- MDEQ Permits are required for the project under Part 303, Wetland Protection, Part 301, Inland Lakes and Streams and the Floodplain Regulatory Authority of Part 31 of the Natural Resources and Environmental Protection Act of 1994, as amended (NREPA).
- The proposed road construction would directly impact at least two listed species of threatened or endangered species requiring a Part 365 permit from the Michigan Department of Natural Resources (MDNR).

- The MDEQ received the original application on October 7, 2011, considered the application administratively complete on January 17, 2012,

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issued a Public Notice for the application for permit on January 23, 2012 and held a Public Hearing on February 21, 2012. The "Project Use and Alternatives" as well as the "Alternatives Analysis/Project Assessment" sections included with application serve as the alternatives analysis required by Part 303. In response to the MDEQ's March 13, 2012 request for clarification of application issues, additional project information was submitted by the applicant on April 12, May 7, May 21 and May 28, 2012, June 6 and July 5 (submittal of comprehensive application incorporating all revisions and addendums since January 2012). MDEQ is presently reviewing the recently submitted information.

- Project information provided by the applicant indicates that the proposed CR-595 route is 20.9 miles long and will cost an estimated \$82 million.
- With the original submittal of the application, the applicant determined that the Peshekee, Dishno, and 550 alternatives that were initially considered either did not meet the project purpose and need or were not feasible and prudent. The MDEQ concurs with this conclusion.
- The applicant eliminated two alternatives because they considered the alternatives as not being prudent. The Mulligan East High alternative is estimated as being approximately 48 percent more costly than the proposed route. The Mulligan East High April 2012 alternative is 23.4 miles long at an estimated cost of \$131 million, with wetland impacts estimated at 15.7 acres and would involve 14 stream crossings. The Mulligan West alternative cannot avoid impacting a Nature Conservancy conservation easement. The Mulligan West January 2012 version is 25.6 miles long with an estimated cost of \$78 million, with wetland impacts of 10.45 acres and 18 stream crossings. The MDEQ concurs with the elimination of the above alternatives.

The Red Road/CR510 January 2012 version is 39.9 miles long with an estimated cost of \$107 million; approximately 30 % higher cost to construct than the applicant's preferred CR 595 route. The wetland impacts are estimated at 18.3 acres with 34 stream crossings of which, 5 of which would be new stream crossings. The applicant claims that this alternative does not meet the project purpose and is not feasible or not prudent because: 1) it does not substantially improve emergency, commercial, and recreational access to northwest Marquette County (see attached map); 2) the route is 19 miles longer than the proposed CR 595 route. A revised Red Road/CR 510 route was also included as an alternate route in the April 12, 2012 submittal. The applicant indicates that the revised route has additional stream crossings, higher wetland impacts, more miles, and higher cost than the January 2012 version. This alternate route was evaluated ~~looked at~~ by the applicant to relocate the Dead River crossing to a

less flood prone area. MDEQ has ~~has~~ concurred ~~that the~~ CR510/Red Road ~~alternative~~ is not feasible or prudent~~red~~.

~~A revised Red Road/CR 510 route was also included as an alternate route in the April 12, 2012 submittal. The applicant indicates that the revised route has additional stream crossings, higher wetland impacts, more miles, and higher cost than the January 2012 version. This alternate route was looked at by the applicant to avoid recreational residences and relocate the Dead River crossing to a less flood prone area. If the applicant intends to further pursue this revision, additional supporting documentation is needed.~~

~~The cost differential between the proposed CR 595 route (\$85 million) and the Red Road/CR510 alternative (\$113 million) may be reduced if additional available methods to minimize detriments to aquatic resources are required to be incorporated for the CR 595 route. For example, employing a method to span a sensitive wetland area or increasing the span of a stream crossing and shortening the enclosure length to allow for improved wildlife and aquatic organism passage would be within the range of typical costs for a road that spans another road or other obstacle.~~

~~It is unknown if similar measures would be needed for the Red Road /CR 510 alternative. The Red Road/CR 510 alternative has less impact to wetland aquatic resources and fewer new stream crossings. The Red Road/CR510 alternative has more existing stream crossings which would be upgraded than the proposed CR 595 route. MDEQ estimates that there would be less overall wetland impact, and the fragmentation of aquatic habitat would be less significant than the CR 595 route, since the Red Road/CR 510 alternative route is comprised of existing roads.~~

~~The MDEQ has not eliminated the Red Road/CR510 route as a less damaging feasible and prudent alternative to the proposed route.~~

## **Part 303: WETLAND PROTECTION**

### **Part 303: Wetland Permit Review Criteria**

Section 30311, of Part 303, states in pertinent part:

- (1) A permit for an activity listed in section 30304 shall not be approved unless the department determines that the issuance of a permit is in the public interest, that the permit is necessary to realize the benefits derived from the activity, and that the activity is otherwise lawful.

***(Finding) A new primary county road is determined benefit the public interest by: providing a more direct and improved route of access to northwest sections of Marquette County; shortening haul distances for transport of mine ore, aggregate, and logging products to existing product processing centers; reducing heavy truck traffic in more populated areas; and reducing affected employee travel distances to employment locations. A new county primary road would provide a public safety benefit by providing increased efficiencies and safety response times for emergency services to northwestern Marquette County.***

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***There is support for this project from the majority of the local townships, cities, county governments, and some citizens in the area.***

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***There is opposition to the project by some citizens and the following :***

***Powell Township  
Great Lakes Indian Fish and Wildlife Commission  
Lac Vieux Desert Band of Lake Superior Chippewa Indians  
Yellow Dog Watershed  
National Wildlife Federation  
Upper Peninsula Environmental Coalition  
Water Action Vital Earth  
Superior Watershed Partnership***

***The proposed road would impact regulated wetlands, streams and floodplain areas and permits are necessary to realize the benefits of the proposed activity.***

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***At the time of this review, the proposed activity has not ~~yet~~ been shown to be otherwise lawful under NREPA since ~~prior a~~ permit would be required under Part 365, Endangered Species Protection, of NREPA. In addition, not all areas proposed to be impacted by the road have been ~~shown to have been~~ adequately surveyed for Part 365 permit requirements. The MDNR has identified concerns with potential impacts and advises that previous surveys, both internal and external, should be consulted to help determine all Part 365 requirements. For example, Cerulean Warblers are known to breed in the area, which contains***

***critical habitat for the species; there is no acknowledgement by the applicant that this state threatened species would be impacted or even exists in the area, only that the habitat likely supports it.***

- (2) In determining whether the activity is in the public interest, the benefit which reasonably may be expected to accrue from the proposal shall be balanced against the reasonably foreseeable detriments of the activity. The decision shall reflect the national and state concern for the protection of natural resources from pollution, impairment, and destruction. The following general criteria shall be considered:

- (a) The relative extent of the public and private need for the proposed activity.

***The proposed road would result in detrimental effects to rare wetlands which are vulnerable to extirpation in Michigan. Approximately 50 percent of the wetlands that would be impacted are rare and imperiled wetlands of exceptional quality, and which support state threatened species that would be impacted by the proposed road. These wetlands are the best remaining examples of their type in Michigan, and are known to be sensitive to human activities such as roads. Direct, secondary, and cumulative impacts to these wetlands would include: fragmentation, impacts to wildlife habitat and populations, changes in wetland hydrology and water quality, introduction of invasive species, and significant vulnerability to further development.***

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***Most of the streams that would be affected by the proposed road are designated trout streams.***

***Regarding the public need for the proposed activity; the County Road Commission is the public agency responsible for determining county road needs, and has determined there is a public need for a new county primary road to service northwest Marquette County. In deference to the Marquette County Road Commission's responsibility for making determinations regarding county roads, the MDEQ has accepted the public need for a new county primary road.***

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***Regarding the private need for proposed activity; a new primary county road would help to meet existing and future demands for improved access and safety concerns related to the mineral mining, aggregate extraction, and forestry products industries of northwest Marquette County and for the transportation of products, services and people to and from the source location to the processing facilities located in Marquette County and other locations throughout the Upper Peninsula of Michigan. In addition, there exists private and public need for improved year-round access to recreational lands held in private and public***

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ownership in northwest Marquette County and for the transportation of people, goods and services to and from population centers.

- (b) The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.

(Finding) ~~The existing Wolf Lake Road represents re-is a potential alternate primary county road route for a portion of the proposed route, and, utilizing the existing Wolf Lake Road. Use of this alternative wouldThe Red Road/CR510 alternate route result in-has less wetland-aquatic resource impacts, and less new stream crossings. The Red Road/CR 510 alternative has not been ruled out by MDEQ as a feasible and prudent alternative route at this time. The applicant has indicted that this alternative is not feasible and prudent. This is the route applied for in the comprehensive application received by the UP District Office on July 5, 2012, and currently under review.~~

Design methods to minimize aquatic resource impacts were considered in the application for proposed CR 595. These include the following: 1) the use of 1 on 2 side slopes with guard rail, 2) reduced speed limits to allow for curves, 3) measures to prevent storm water runoff directly into streams and some wetland areas, and 4) the use of properly sized culverts and bridges to match stream flows and help minimize wildlife passage issues. Additional methods could be used to further reduce impacts. These measures may unavoidably increase the cost of the proposed CR 595 route.

The cost differential between the proposed CR-595 route (\$82 million) and the Red Road/CR510 alternative (\$107 million) considered in the application may be reduced if additional available methods to minimize detriments to aquatic resources are employed. For example, spannig additional sensitive wetland areas would be within the range of typical costs for a road that spans another road or other obstacle. The use of additional design areas ½ slopes and guardrail, and/or a lower profile road without passing lanes would result in less impact to sensitive aquatic resources and the benefits they provide, than the type of road currently proposed.

- (c) The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private uses to which the area is suited, including the benefits the wetland provides.

(Finding) ~~The proposed CR 595 route would terminate at an existing designated seasonal county road (CR 1AA; aka "Triple A Road"), which would be maintained to CR 550 (the currently approved mine haul route) by Kennecott for hauling purposes until such time as proposed CR 595 would be available for use.~~

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~~Leaving this portion of CR IAA to be maintained as a seasonal road means that the proposed CR 595 would not significantly benefit the town of Big Bay and much of Powell Township, which currently access the Marquette area via CR 550. The new road would benefit the economic interests of the mining, logging, and aggregate industries in remote northwest Marquette County, improve private property access and values, and would increase the tax base in the four directly affected townships in the geographical area.~~

The new road would open up a remote area, thereby improving the recreational access in a sense, but would unavoidably result in loss of current quiet recreational values, due to road noise and other road impacts, including those on wildlife. The new road would eliminate access to at least some of the existing network of two track roads and trails currently used for multiple recreational purposes, since the proposed road represents a significantly higher profile than existing roads and trails.

The new road would provide for faster, more efficient, direct, and year round access to portions of northwest Marquette County for law enforcement and emergency services. It would also unavoidably result in increased wild fires, since 90 percent of wildfires are known to be caused by human activity. The new road would result in an increase in emergencies and law enforcement issues due to increased human use of the area. Emergency and law enforcement access to the main population center of northwest Marquette County in the town of Big Bay and much of Powell Township would not be improved by the proposed new road.

The response time from the Bell Memorial hospital in Ishpeming will be 30-45 minutes along the proposed CR-595 route versus 90 minutes for the RedRoad/CR510 route. The response time to and from Marquette General hospital would be similar for both routes.

~~-Detriments of the proposed new road would be direct elimination of 24.32 acres of wetlands, approximately half of which are rare and of exceptional quality. Fragmentation of habitat, take of protected species associated with aquatic habitats, negative effects on wildlife population and habitat, impacts on water quality and hydrology at wetland and stream crossings, and loss of some recreational and cultural values to humans are the expected detriments. The new road would likely result in significant cumulative impacts to aquatic resources as a result of secondary road construction and improved opportunity for industrial and residential development, as a result of providing improved access in an essentially undeveloped area. The area is unique in currently having one of the lowest road densities in the Northern Great Lakes Region.~~

- (d) The probable effects of each proposal in relation to the cumulative effects created by other or existing and anticipated activities in the watershed.

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***(Finding) The applicant states that the area will not likely see increased development as a result of the proposed new road since there is a lack of adequate electrical service to the area. However, the new road would make it possible to extend electrical power service, and this is not a significant factor in the potential for increased development.***

***The proposed road would result in cumulative impact effects on aquatic habitats and wildlife resources by allowing increased access for industrial and logging use, and increased opportunity for recreational access and residential development on private and public property. The proposed CR 595 route would open up a relatively undeveloped area, resulting in cumulative, unquantifiable disruption to rare and imperiled wetlands present within the region. -The proposed road location would result in greater aquatic resource impacts than the upgrade of existing roads to primary county road standards, because it ~~it~~ necessitates more new stream crossings, more rare wetland impacts, and fragmentation of stream and wetland areas not currently bisected or otherwise affected by any substantial roads.***

- (e) The probable effects on recognized historic, cultural, scenic, ecological, or recreational values and on the public health or fish or wildlife.

***(Finding) The proposed CR 595 route would likely impact Native American cultural values by essentially bisecting a unique large and largely undeveloped area protected by treaty rights (reference Keewenaw Bay Indian Community {KBIC} and related comments). The KBIC has appealed to the United Nations; the United States endorsed the United Nation's "Declaration on the Rights of Indigenous Peoples" in 2010. The significance of the KBIC objection on state regulation is unclear.***

***The applicant stated that according to the URS Corporation Phase 1 archeological survey, the proposed CR 595 would not affect any archeological resources eligible for the National Register for Historic Places. No archeological concerns have been identified on state-owned property. However, MDNR recommends a more in-depth archeological survey be performed on private and corporate lands.***

***The proposed road would impact scenic values in a way that is positive for some and negative for others.***

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***The proposed road would negatively impact ecological values including fish and wildlife values by directly eliminating 25.8424.32 acres of wetlands, including rare wetlands of exceptional quality, and bisect large intact wetlands of exceptional quality which are highly sensitive to this type of disturbance. The proposed road would affect ecological values of streams by impacting riparian wetlands and necessitating new stream crossings in currently road-less***



locations. Ecological impacts would include those to wildlife habitat and populations, hydrology and water quality, introduction of invasive species, and road noise.

The MDNR consulted with the applicant on measures that could be employed to minimize some of these impacts. These measures are referenced throughout this document (see pages 5, 7, and 11), and some are expected to be included in the comprehensive application (received July 5 in the UP District and currently under review).

The proposed road would improve some types of recreation through improved recreational access. The proposed road would have impacts on some types of existing recreation and existing recreational access.

The impact on the public health would be positive in that accident victims in the remotest areas of northwestern Marquette County would receive faster emergency service, although the road would unavoidably result in an increased need for these services.

(f) The size of the wetland being considered.

*(Finding) The impacts to wetlands and aquatic resources resulting from the proposed road would be in an area which includes portions of 4 watersheds located in Marquette and Baraga Counties. The affected wetland complexes are mainly large and intact. Approximately 50% of the wetland impacts resulting from the proposed road would be to rare "S-3" wetlands, designated by MNFI as vulnerable to extirpation in Michigan, and to wetlands providing critical habitat to state listed threatened S-2 (imperiled) and S-3 species. The rare wetlands that would be impacted by the road are the best remaining examples of these types of wetlands remaining in Michigan.*~~Information is still pending from the applicant regarding impacts to rare wetlands.~~

(g) The amount of remaining wetland in the general area.

*(Finding) There is a significant amount of wetland in the general area. About half of the wetlands that would be affected by the proposed construction are rare wetlands vulnerable to extirpation in Michigan. The resulting secondary and cumulative impacts to these wetlands and aquatic resources cannot be accurately predicted. If the proposed road were constructed, some of these rare wetlands would remain.* Insert info on remaining rare wetlands, and percentage lost by proposed road, etc.

*These wetlands are located in an area that is unique for having one of the lowest road densities in the Northern Great Lakes Ecological Region, and the wetlands*

***that would be impacted are the best remaining examples of these rare wetland communities in the state of Michigan.***

(h) Proximity to any waterbody.

***(Finding) The proposed road is in close proximity to and would bisect high quality aquatic resources including rare wetlands and trout streams.***

(i) Economic value, both public and private, of the proposed land change to the general area.

***(Finding) The private economic value of the proposed land change to the general area would include more efficient transport of materials for industry, and likely increased industrial land use and development due to improved access for mining, logging, and other commerce. Property values may increase due to improved access to private properties and increased development.***

***The public economic value would come from increased tax base to the affected townships, as well as new jobs resulting from the increased tax base and increased commercial activity.***

***The zoning plan chapter of the Marquette County Comprehensive Plan identifies some detriments of the proposed road, stating in pertinent part:***

***“The proposed access road to the remote Kennecott mining site....will be an all season road...It will generate requests to rezone areas for year-round development...Such zoning would further burden already taxed township services...It increases the risk for and potential damage from wildfires. At the same time it would increase the difficulty in providing fire fighting and other emergency and routine services.”***

***Summary of findings regarding the public interest determination:***

***The proposed road provides benefits to the public interest including economic benefits due to improved access to a remote area (note safety and recreational benefits are not included here since improved access increases public safety issues and the recreational benefits are changed but not necessarily increased). The permanent detriments to rare and imperiled wetlands of exceptional quality, including impacts to state listed threatened species supported by these habitats deprives the people of the state of the exceptional benefits these wetlands provide. The full extent of these detriments is not quantifiable.***

- (3) In considering a permit application, the MDEQ shall give serious consideration to findings of necessity for the proposed activity which have been made by other state agencies.

***(Finding) MDOT has determined that a new primary county road is needed, but does not limit its finding to the specific corridor proposed by the application (Appendix B). Recently, the CRC was granted MDOT funding for upgrade of CR IAA, which is common to both the proposed route and the formerly considered potential alternative, the Red Road/CR 510 route.***

***The Michigan State Police statement determines that the proposed road would increase traffic safety by taking heavy trucks off existing routes and improving traffic flow on CR 550, the US-41/M-28 corridor and through the cities of Marquette, Negaunee, and Ishpeming (Appendix G of the application).***

***The MDNR indicates that the proposed route would reduce the response time for MDNR firefighters to a remote part of Marquette County.***

- (4) A permit shall not be issued unless it is shown that an unacceptable disruption will not result to the aquatic resources. In determining whether a disruption to the aquatic resources is unacceptable, the criteria set forth in section 30302 and subsection (2) shall be considered:

{INSERT}

Legislative findings as defined by sections 30302(1) of Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act 1994 PA 45, are as follows:

Section 30302(1) The Legislature finds that:

- (a) Wetland conservation is a matter of State concern since a wetland of 1 county may be affected by acts on a river, lake, stream, or wetland of other counties.

***(Finding) The proposed development would impact wetlands and streams in four watersheds located in Baraga and Marquette Counties. Rare wetlands proposed ranked S3, vulnerable to extirpation in Michigan (MNF1) would be impacted. The S3 communities that would be impacted by the proposed activity according to the application. These include: Hardwood-conifer Swamp, Rich Conifer Swamp, Northern Hardwood Swamp, and additional wetlands supporting state threatened species ranked as S2 (imperiled) and S3.***

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- (b) A loss of a wetland may deprive the people of the state of some or all of the following benefits to be derived from the wetland:

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- (i) Flood and storm control by the hydrologic absorption and storage capacity of the wetland.

*(Finding) The proposed road would likely result in impacts to flood and storm control functions of the affected wetlands, including runoff of storm water. The proposed road construction would directly eliminate ~~25.84~~24.32 acres of wetland, much of which is located within floodplains and riparian areas along streams. The majority of these riparian wetlands were found to be high-functioning wetlands, according to the MiRAM wetland functional assessment included in the application. The affected wetlands function as storage areas for flood waters, especially during spring thaws of heavy snow accumulations in the project area. The loss of floodplain storage is proposed to be mitigated at larger stream and river crossings with compensating cuts within regulated 100-year floodplain areas (Part 31, Water Resources Protection, NREPA).*

- (ii) Wildlife habitat by providing breeding, nesting, and feeding grounds and cover for many forms of wildlife, waterfowl, including migratory waterfowl, and rare, threatened, or endangered wildlife species.

*(Finding) The proposed road would directly eliminate ~~25.84~~24.32 acres of wetland, including more than 10.68 acres of rare wetland types (more than 43 % of the total wetland impact; exact impact to be determined in review of the comprehensive application recently submitted by the applicant). The elimination of these wetlands would result in loss and fragmentation of habitat for wildlife species. The proposed road represents a potentially significant physical barrier to wildlife movement and increase in wildlife mortality. Impacts to habitat and increased mortality would result in negative effects on wildlife populations. Road generated noise would likely cause additional negative impacts ~~to on-wildlife-habitat-and~~ species populations.*

*Further impacts to wildlife habitat would include the introduction of invasive plants, changes in wetland hydrology, and water quality degradation resulting from runoff of road sand, salt, and other pollutants; affecting adjacent wetland and riparian areas. Direct impacts to at least two threatened or endangered species would result from the proposed road construction, requiring a permit from the MDNR (Part 365 of NREPA).*

*The MDNR ~~has commented on the application and has recommended~~ the following to minimize potential impacts ~~to wildlife populations~~: 1) use of existing roads as much as possible; 2) reduced speed limits to 45 mph in areas where moose vehicle strikes are a concern (not legally enforceable according to the CRC in a 5/25/2012 meeting with MDNR and MDEQ); 3) monitoring and reporting of vehicle wildlife collisions after completion of road construction to determine if additional mitigation solutions are needed; 4) minimization of grassy roadside areas that may be attractive to wildlife as a food source; 5) use of native grasses*

for all roadside plantings; ~~6)~~ and survey for and removal of invasive/exotic noxious plants; ~~7)~~ evaluation of new types of pavement to reduce road noise; ~~8)~~ limitation of secondary road construction; ~~9)~~ reduction of road salt loads and/or use of calcium magnesium acetate or potassium acetate as an alternative to road salt.

- (iii) Protection of subsurface water resources and provision of valuable watersheds and recharging ground water supplies.

***(Finding) The proposed road does not appear to be a significant threat to subsurface water resources or to potentially interfere with groundwater recharge. To minimize impacts to the hydrology of adjacent wetlands the applicant is proposing equalizer culverts and a 3-foot thick layer of porous rock as part of the road construction design to allow for the movement of ground water through the road bed at wetland crossings.***

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- (iv) Pollution treatment by serving as a biological and chemical oxidation basin.

***(Finding) The proposed road would directly eliminate ~~25.84~~ 24.32 acres of wetland that currently function to serve as biological and chemical oxidation basins. The proposed project may result in a negative effect on the existing and remaining wetland hydrology and water quality, further impacting wetland function.***

- (v) Erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter.

***— (Finding) Direct loss of wetlands proposed to be filled at road crossings and water quality impacts to adjacent wetlands would result from construction of the road. The wetlands proposed to be impacted function as filtering and sedimentation basins.***

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***There would likely be reduced erosion and sedimentation of riparian and adjacent wetlands at the existing currently undersized stream crossing structures, since these crossings are proposed to be upgraded to at least match bank full conditions.***

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- (vi) Sources of nutrients in water food cycles and nursery grounds and sanctuaries for fish.

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***This wetland function would likely be impacted by the proposed road project as a result of elimination of some riparian wetlands and may result in cumulative impacts to stream habitat and water quality.***

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- (c) Wetlands are valuable as an agricultural resource for the production of food and fiber, including certain crops which may only be grown on sites developed from wetland.

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***(Finding) The proposed road is not likely to affect any wetlands currently in agricultural use, but could impact cultural uses of wetlands in affected areas.***

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- (d) That the extraction and processing of nonfuel minerals may necessitate the use of wetland, if it is determined pursuant to section 30311 that the proposed activity is dependent upon being located in the wetland and that a prudent and feasible alternative does not exist.

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***(Finding) The proposed activity does not include the extraction of nonfuel minerals and is not dependent upon being located in a wetland.***

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- (2) In the administration of this part, the department shall consider the criteria provided in subsection (1).

Section 324.30311 continued...subsection (4)

(4) A permit shall not be issued unless it is shown that an unacceptable disruption to the aquatic resources. In determining whether a disruption to the aquatic resources is unacceptable the criteria set forth in section 30202 subsection (2) {ABOVE} shall be considered. A permit shall not be issued unless the applicant also shows either of the following:

***(Finding) Impacts to rare and imperiled wetlands, including wetlands supporting state threatened species would constitute approximately half of the proposed wetland impacts. The state threatened species supported by these exceptional quality wetlands include the Narrow-leaved Gentian (S-2, imperiled) and Cerulean Warbler (S-3, vulnerable to extirpation in Michigan). The application does not acknowledge impacts to Cerulean Warbler.***

***These rare wetlands are the best remaining examples of these types of wetlands in Michigan, and they support rare habitats and species which would be adversely impacted by the road.***

***Due to the exceptional quality and rare nature of these wetlands, and the anticipated impacts of the proposed road, including: habitat fragmentation and impacts to water quality and hydrology; and wildlife habitat and biodiversity; the proposed activity would result in significant disruption to and degradation of aquatic resources. The loss of the values and functions of these rare wetlands would be significantly difficult to mitigate. MDEQ is currently reviewing a comprehensive application including all revisions and addendums since January 2012 to finalize these findings regarding unacceptable disruption to the aquatic resources.***

- (a) The proposed activity is primarily dependent upon being located in the wetland.

***(Finding) The proposed road is not primarily dependent upon being located in a wetland.***

(b) A feasible and prudent alternative does not exist.

***(Finding) It has not currently been shown by the applicant that a less damaging feasible and prudent alternative does not exist, in regard to additional measures to further reduce impacts to rare aquatic resources. These could include a lower profile road, elimination of passing lanes, and clear spans of exceptional quality wetlands. A final and comprehensive application including all revisions and addendums was recently received from the applicant and is currently under review.***

(5) An alternative that entails higher cost, as described in R 281.922(a) (11) of the Michigan administrative code, is not feasible and prudent if those higher costs are unreasonable. In determining whether such costs are unreasonable, the department shall consider both of the following:

(a) The relation of the increased cost to the overall cost and scope of the project.

***(Finding) The applicant estimates that the Red Road/CR510 route Wolf Lake Road route alternative is less cost than the previously proposed route. alternative as presently designed would increase project cost over the CR595 route as presently designed by approximately 33%.***

Cost increases for other measures to further reduce aquatic resource impacts for either route may increase the cost of the at proposed roadoute. A cost summary for proposed route and alternatives included in the application and taking into consideration road maintenance, follows:



Measures to reduce impacts resulting from the upgrade of existing roads (as for the Red Road/CR 510 alternative) would be less significant than those needed to reduce aquatic resource detriments likely to result from construction of a new road.

Alternative	NPV of Total Cost to MCRC (\$M)	Increase in Cost Relative to CR 595 as proposed (\$M)	Increase in Cost Relative to CR 595 as proposed	Stream Crossings	Wetland Impact (Acres)	Wetland Impact Avoided (Acres)	Cost per acre of wetland impact avoided (\$M/acre)	Length (Miles)	NPV of Ore Hauling* (\$M)
CR 595 as proposed	\$105	NA	NA	22	25.5	NA	NA	21.4	\$20
Sleepy Hollow/Red Road (1/12)	\$144	\$28	37%	34	18.3	7.2	\$4	39.9	\$33
Sleepy Hollow/Red Road (4/12)	\$152	\$34	44%	31	21.2	4.3	\$8	40.5	\$33
Mulligan East (6/12)	\$125	\$70	19%	14	35.4	NA	NA	23.4	\$22
Mulligan East (4/12)	\$127	\$46	21%	17	15.7	9.8	\$5	25.6	\$24
Mulligan West	Not Prudent and Feasible due to Conservation Easement								

NPV is "Net Present Value" of Operating plus Capital Costs

This represents the to Kennecott for hauling ore over each alternative. It was not used in any of the Calculations.

\*a.k.a Red Road/CR 510 in the application

(b) Whether the projected cost is substantially greater than the costs normally associated with the particular type of project.

**(Finding) see (a) above. The estimated cost for the CR-595 project is \$4.0 million per mile for the proposed 20.9 mile road. ~~\$2.8 million per mile for the 39.9 mile road.~~ Costs can vary considerably depending on pavement thickness, soil conditions, utility conflicts, storm sewer requirements, land use, terrain, and the need to excavate natural soils or blast through rock. The Marquette County Road Commission recently estimated that upgrading portions of Triple A Road and County Road 601 will range from \$1.5 - \$2.1 million per mile.**

**The Michigan Department of Transportation indicates that their average cost to reconstruct an existing road in the Upper Peninsula was \$1.9 million for a 2 lane road. They constructed a new section of US-41 near Baraga a couple**

*of years ago at a cost of \$.193 million per mile which included moving the road about 100 feet on flat terrain with no stream crossings. The City of Marquette is completing a new 0.48 mile segment of road by extending McClelland Avenue at a cost of \$1.8 million (equivalent to \$3.6 million per mile) This included items for curb and gutter, storm sewer, 2 traffic signals, stream restoration work and the construction of a retaining wall to avoid additional wetland impacts.*

*Typical reconstruction costs in the lower peninsula have ranged from \$340,000 per mile to \$1.2 million per mile in rural flat areas not including engineering and design costs. A one mile extension of Michigan Avenue in Eaton County with minimal fill, no stream crossings or right of way cost \$2.6 million, including \$800,000 for a sound wall, some turn lanes, sidewalk, and partial 3 lane road. Cost did not include engineering and design. A recent project in Barry County cost \$1.5 million per mile to upgrade an existing road and \$7 million per mile to install a new section of road with 2 large bridges. Reference attached cost comparison. See attachment 3.*

Rule 281.922a Permit application review criteria, states in pertinent part:

Rule 2(a)

(4) A permit applicant shall completely define the purpose for which the permit is sought, including all associated activities. An applicant shall not so narrowly define the purpose as to limit a complete analysis of whether an activity is primarily dependent upon being located in the wetland and of feasible and prudent alternatives. The department shall independently evaluate and determine if the project purpose has been appropriately and adequately defined by the applicant, and shall process the application based on that determination.

(10) An alternative may be considered feasible and prudent even if it does not accommodate components of a proposed activity that are incidental to or severable from the basic purpose of the proposed activity.

***(Finding) The MDEQ has indicated previously that the project purpose as stated in the application is acceptably and adequately defined by the applicant. The project purpose stated in the application follows:***

*"To construct a primary county north-south road that 1) connects and improves emergency, commercial, industrial, and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41; and 2) reduces truck travel from this area through Marquette County population centers".*

***The applicant has eliminated the ~~several of 4~~ evaluated alternatives as not being feasible or prudent and/or as not meeting the project purpose, except utilization***

~~of the existing Wolf Lake Road for a portion of the proposed CR 595 route, proposed in the comprehensive application which is currently under review. Regarding the potential Red Road/CR510 alternative, the applicant states that that the route is 19.9 miles (actually 18.5 miles) longer, requiring substantial additional expenditures for maintenance, estimated at \$76,000 per year. The applicant further argues that the Red Road/CR510 alternative does not substantially improve emergency, commercial, and recreational access to northwest Marquette County.~~

## Mitigation

### Rule 281.925 Mitigation

Rule 5. (1) As authorized by section 30312(2) of the act, the department may impose conditions on a permit for a use or development if the conditions are designed to remove an impairment to the wetland benefits, to mitigate the impact of a discharge of fill material, or to otherwise improve the water quality.

(2) The Department shall consider mitigation only after all of the following conditions are met:

(a) The wetland impacts are otherwise permissible under sections 30302 and 30311 of the act.

***(Finding) The application is currently under review, including new information on impacts to rare wetlands, to determine whether the proposed activity would result in an unacceptable disruption to the aquatic resources.***

(b) No feasible and prudent alternative to avoid wetland impacts exists.

***(Finding) There are likely feasible and prudent methods to further reduce wetland impacts to rare wetlands, such as additional clear span areas, and/or a lower profile road design.***

(a) An applicant has used all practical means to minimize impacts to wetlands. This may include the permanent protection of wetlands on the site not directly impacted by the proposed activity.

***(Finding) The applicant proposes several techniques to minimize impacts to wetlands along the proposed route, including the use of 1 on 2 slopes with guard rail in some impacted wetland areas, reduced speed limits to allow curves in certain sections of the proposed roadway, the use of bridges instead***

of culverts on some of the stream crossings, directing storm water runoff away from streams and some wetland areas, and the wetland equalizer culverts and a 3 foot layer of subsurface porous rock to allow groundwater flow to easily move from one side of the road to the other. The MDNR comments state that the use of existing roads is preferred over new road construction, and also suggests the applicant explore other methods to further reduce impacts of the proposed route.

—— The applicant has submitted a revised mitigation plan to include does not proposed describe mitigation for impacts to rare wetlands, including preservation, which is currently under review, and describes the creation of forested, scrub shrub, and emergent wetlands as mitigation. This has been discussed with the applicant. The applicant is working on a revised draft mitigation plan.

The MDEQ is reviewing the current comprehensive application submittal to determine whether wetland impacts are fully quantified or qualified in the application. Additional rare wetland impact information is pending from the applicant. The EPA has indicated that mitigation through creation only is inadequate, and that the applicant needs to look at other options as well including restoration and preservation.

(3) The department shall require mitigation as a condition of a wetland permit issued under part 303 of the act, except as follows:

- (a) The department may waive the mitigation condition if either of the following provisions applies:
  - (i) The permitted wetland impact is less than 1/3 of an acre and no reasonable opportunity for mitigation exists.

***(Finding) The proposed activity would impact far in excess of 1/3 of an acre of wetland. The MDEQ is awaiting information regarding impacts to rare wetlands, and a new mitigation plan from the applicant. This information is needed to complete this finding.***

- (ii) The basic purpose of the permitted activity is to create or restore wetlands or to increase wetland habitat.

***(Finding) The basic purpose of the proposed activity is not to create or restore wetland.***

- (b) If an activity is authorized and permitted under the authority of a general permit issued under section 30312(1) of the act, then the department shall not require mitigation. Public transportation agencies may provide mitigation for

projects authorized under a general permit at sites approved by the department under a memorandum of understanding between the department and public transportation agencies.

***(Finding) The proposed activity does not fit any general or minor permit category.***

(4) The department shall require mitigation to compensate for unavoidable wetland impacts permitted under part 303 of the act utilizing one or more of the following methods:

- (a) The restoration of previously existing wetlands.

***(Finding) A limited amount of wetland restoration is proposed, without plans or performance factors for monitoring of the restored wetlands. The applicant was proposing to restore these wetlands but did not request credit for mitigation, so that there would not be any monitoring conditions required, unless these restoration areas are included in the revised mitigation plan.***

- (b) The creation of new wetlands.

***(Finding) The MDEQ is currently reviewing the new mitigation plans recently submitted by the applicant.***

- (c) The acquisition of approved credits from a wetland mitigation bank established under R281.951 et seq.

***(Finding) The application proposes some of this type of mitigation in the new mitigation plan, which is currently under review.***

- (d) In certain circumstances, the preservation of existing wetlands. The preservation of existing wetlands may be considered as mitigation only if the department determines that all of the following conditions are met:

- (i) The wetlands to be preserved perform exceptional physical or biological functions that are essential to the preservation of the natural resources of the state or the preserved wetlands are an ecological type that is rare or endangered.

***(Finding) Rare wetlands in the vicinity may be considered favorably for preservation, and the applicant has taken this into consideration in the new mitigation proposal.***

- (ii) The wetlands to be preserved are under a demonstrable threat of loss or substantial degradation due to human activities that are not

under the control of the applicant and that are not otherwise restricted by state law.

**(Finding) see (i) above.**

- (iii) The preservation of the wetlands as mitigation will ensure the permanent protection of the wetlands that would otherwise be lost or substantially degraded.

**(Finding) see (i) and (ii) above.**

(5) The restoration of previously existing wetlands is preferred over the creation of new wetlands where none previously existed. Enhancement of existing wetlands is not considered mitigation. For purposes of this rule, wetland restoration means the reestablishment of wetland characteristics and functions at a site where they have ceased to exist through the replacement of wetland hydrology, vegetation, or soils.

(6) An applicant shall submit a mitigation plan when requested by the department. The department may incorporate all or part of the proposed mitigation plan as permit conditions. The mitigation plan shall include all of the following elements:

- (a) A statement of mitigation goals and objectives, including the wetland types to be restored, created, or preserved.

**(Finding) The revised mitigation plan submitted with the comprehensive application is currently under review, and must include identification of functions and values that would be lost from the impacted wetlands, and state the replacement of lost wetland functions as a wetland mitigation objective.**

- (b) Information regarding the mitigation site location and ownership.

**(Finding) The revised mitigation plan is currently under review to determine if this information is provided.**

- (c) A site development plan.

**The plans are being reviewed to determine if they include cross sections or detailed information, such as proposed wetland plant and wildlife habitat functions replacement, or replacement of other lost wetland functions and values.**

- (d) A description of baseline conditions at the proposed mitigation site, including a vicinity map showing all existing rivers, lakes, and streams, and a delineation of existing surface waters and wetlands within the proposed mitigation area.

***(Finding) The revised mitigation plan is under review to determine if this information is provided.***

Performance standards to evaluate the mitigation.

***(Finding) The revised mitigation plan is under review to determine if performance standards are provided in sufficient detail such as proposed wetland plant communities and wildlife goals, and functions proposed to replace functions lost from the wetlands, including rare wetlands, which would be impacted by the proposed road route.***

(e) A monitoring plan.

***(Finding) A more detailed monitoring plan is needed, and the revised mitigation plan is being reviewed to determine what has been provided.***

(f) A schedule for completion of the mitigation.

***(Finding) Mitigation plan under review.***

(g) Provisions for the management and long-term protection of the site.

The department shall, when requested by the applicant, meet with the applicant to review the applicant's mitigation plan.

***(Finding) The revised mitigation plan is currently under review to determine if provisions are included for the long term protection of the proposed mitigation site(s).***

(7) An applicant shall provide mitigation to assure that, upon completion, there will be no net loss of wetlands. The mitigation shall meet the following criteria as determined by the department:

(a) Mitigation shall be provided on-site where it is practical to mitigate on-site and where beneficial to the wetland resources.

***(Finding) The revised mitigation plan is currently under review to determine this.***

(b) If subdivision (a) of this subrule does not apply, then an applicant shall provide mitigation in the immediate vicinity of the permitted activity if practical and beneficial to the wetland resources. "Immediate vicinity"



means within the same watershed as the location of the proposed project. For purposes of this rule, a watershed refers to a drainage area in which the permitted activity occurs where it may be possible to restore certain wetland functions, including hydrologic, water quality, and aquatic habitat functions. Watershed boundaries are shown in Figure 1 in R 281.951.

***(Finding) The revised mitigation plan is currently under review to determine this.***

- (c) Mitigation shall be on-site or in the immediate vicinity of the permitted activity unless the department determines that subdivisions (a) and (b) of this subrule are infeasible and impractical.

***(Finding) Reference finding above.***

- (d) The department shall require that mitigation be of a similar ecological type as the impacted wetland where feasible and practical.

***(Finding) The revised mitigation plan is currently under review to determine this.***

- (e) If the replacement wetland is of a similar ecological type as the impacted wetland, then the department shall require that the ratio of acres of wetland mitigation provided for each acre of permitted wetland loss shall be as follows:
  - (h) Restoration or creation of 5.0 acres of mitigation for 1.0 acre of permitted impact on wetland types that are rare or imperiled on a statewide basis.

***(Finding) The revised mitigation plan is currently under review to determine this.***

~~Acreages of S-3 wetlands proposed to be impacted should be provided, and a~~

- (ii) Restoration or creation of 2.0 acres of mitigation for 1.0 acre of permitted impact on forested wetland types, coastal wetlands not included under (i) of this subdivision, and wetlands that border upon inland lakes.

***(Finding) The applicant has proposed mitigating forested wetland impacts at a 2 to 1 ratio. Impacts to rare wetlands would necessitate a higher mitigation ratio. The applicant has provided more information about impacts to these wetlands, which is currently under review.***

- (iv) Restoration or creation of 1.5 acres of mitigation for 1.0 acre of permitted impact on all other wetland types.

***(Finding) The revised mitigation plan is currently under review to determine this.***

- (v) 10 acres of mitigation for 1.0 acre of impact in situations where the mitigation is in the form of preservation of existing wetland as defined in subrule (4) of this rule.

(vi)

***(Finding) Preservation is proposed by the current mitigation plan.***

- (f) The department may adjust the ratios prescribed by this rule as follows:

- (i) The ratio may be increased if the replacement wetland is of a different ecological type than the impacted wetland.

***(Finding) The revised mitigation plan is currently under review to determine this.***

- (ii) If the department determines that an adjustment would be beneficial to the wetland resources due to factors specific to the mitigation site or the site of the proposed activity, then the department may increase or decrease the number of acres of mitigation to be provided by no more than 20 percent. This shall not limit the amount which a ratio may be increased under subdivisions (f) and (i) of this subrule.

***(Finding) The proposed wetland impacts are within an area documented to be one of the areas of lowest road density in the Northern Great Lakes Region, and it may be appropriate to seek maximum mitigation acreages due to the unique area proposed to be impacted.***

- (g) The mitigation shall give consideration to replacement of the predominant wetland benefits lost within the impacted wetland.

***(Finding) The wetland functions of the wetlands proposed to be impacted need to be provided in the revised plan, which is currently under review.***

- (h) The department shall double the required ratios if a permit is issued for an application accepted under section 30306(5) of the act.

(Finding) This does not apply.

- (i) The department shall determine mitigation ratios for wetland dependent activities on a site-specific basis.

***(Finding)The proposed activity is not wetland dependent.***

- (8) Except where mitigation is to occur on state or federally owned property or where the mitigation is to occur in the same municipality where the project is proposed, the department shall give notice to the municipality where the proposed mitigation site is located and shall provide an opportunity to comment in writing to the department on the proposed mitigation plan before a mitigation plan is approved by the department.
- (9) An applicant shall complete mitigation activities before initiating other permitted activities, unless a concurrent schedule is agreed upon between the department and the applicant, and an adequate financial assurance mechanism is provided by the applicant.
- (10) The department may require financial assurances to ensure that mitigation is accomplished as specified.
- (11) An applicant shall protect the mitigation area by a permanent conservation easement or similar instrument that provides for the permanent protection of the natural resource functions and values of the mitigation site, unless the department determines that such controls are impractical to impose in conjunction with mitigation that was undertaken as part of state funded response activity under Act No. 451 of the Public Acts of 1994, as amended.
- (12) An applicant, with the approval of the department, may provide all or a portion of the mitigation through the acquisition of approved credits from a wetland mitigation bank established under R 281.951 et seq. One credit shall be utilized for each acre of mitigation required under subrule (7) of this rule.

**Part 301: INLAND LAKES AND STREAMS PERMIT REVIEW CRITERIA**

Section 30106, of Part 301, states in a pertinent part:

The department shall issue a permit if it finds that the structure or project will not adversely affect:

The public trust, as defined by R 281.811, Definitions:

- (1)(g) Public trust means all of the following:

- (j) The paramount right of the public to navigate and fish in all inland lakes and streams which are navigable.

***(Finding) The impact of the proposed road on the public's right to navigate and fish will be minimal.***

- (ii) The perpetual duty of the state to preserve and protect the public's right to so navigate and fish.

***(Finding) Same as (i) above.***

- (iii) The paramount concern of the public and the protection of the air, water, and other natural resources of this state against pollution, impairment, and destruction.

***(Finding) The CR-595 alternative proposal would have 22 stream crossings (15 existing and 7 new). The crossings are designed to span bank full width at a minimum. In some cases larger span and/or shorter structures have been provided may to help address wildlife passage and stream impact issues. Some originally proposed culvert crossings have been replaced by bridges.***

- (iv) The duty of the state to protect the air, water, and other natural resources of this state against pollution, impairment, or destruction.

***(Finding) Same as (iii) above.***

Riparian rights, as defined by R 281.811, Definitions:

- (2) "Riparian rights" as defined in the act, means all the rights accruing to the owners of riparian property, including the following rights, subject to the public trust:

- (a) Access to the navigable waters.

***(Finding) Riparian owner access to navigable waters is not known to be adversely impacted, based on information in the application.***

- (b) Dockage to boatable waters, known as wharfage.

***(Finding) Same as in (a) above.***

- (c) Use of water for general purposes, such as bathing and domestic use.

***(Finding) Same as in (a) above.***

(e) Title to natural accretions.

**(Finding) Same as in (a) above.**

Section 30106, of Part 301, further states in a pertinent part:

Rule (2)

(2) In passing upon an application, the department shall consider:

(a) The possible effects of the proposed action upon the inland lake or stream;

**(Finding) The proposed road has 22 stream crossings, 155 of which are existing. The applicant has proposed ways to further reduce impacts of the proposed route by the use of more bridges, and shorter, wider span culverts with headwalls to minimize impacts of the proposed route, and the use of more bridges. 7 of the proposed stream crossings are new, potentially increasing fragmentation of wildlife and stream habitat. The proposed road would impact water quality at the stream crossings and result in introduction of invasive species along the route. The applicant has attempted to minimize the impact of storm water runoff by diverting the runoff away from entering directly into streams. The MDNR has suggested the applicant consider the use native grasses for all roadside plantings, survey for and remove invasive/exotic noxious plants, reduce road salt loads and examine calcium magnesium acetate or potassium acetate as an alternative to road salt.**

(b) The waters from which or into which its waters flow;

**(Finding) Same as (a) above.**

(c) The uses of all such waters, including uses for:

(i) Recreation

**(Finding) The new road would open up additional recreational access to some streams, but conversely would result in more difficult or dangerous recreational stream access adjacent to the road due to the high profile of the proposed road, and heavy industrial traffic use. The road would eliminate current access from some existing two track roads and trails. Recreation would be negatively impacted by road noise.**

(ii) Fish

**(Finding)** New stream crossings in road-less portions of the proposed route would result in impacts to fish. The applicant has proposed at least bank full span crossing structures to avoid fish passage [and stream fragmentation](#) issues. There would be replacements of existing undersized stream crossing structures with more appropriate spans, and a wider base, impacting more lineal feet of stream. The applicant has revised the application to shorten some culvert lengths and replace some proposed culverts with bridges to reduce stream impacts on the proposed route. These revisions are included in the current review of the recently submitted comprehensive application.

(iii) Wildlife

**(Finding)** The proposed road [would have](#) negative ecological impacts, with one of the greatest being the potential impacts on wildlife. Impacts to wildlife would include habitat fragmentation, adverse impacts of road noise, direct habitat loss,

degradation of habitat, and the barrier effect of the road, which may isolate wildlife populations, and increase mortality.

The road is proposed to be constructed through an area with the highest moose population density in Michigan. The proposed road would negatively impact moose populations through negative effects on winter habitat, overall habitat fragmentation, and by increased mortality from vehicle strikes.

While the MDNR states a preference to limit impacts to currently existing roads, they have proposed a number of measures that could be used to minimize some of these impacts along the proposed road route. The applicant has worked with MDNR to come up with measures [to](#) reduce impacts of the proposed road on fish and wildlife habitat and populations. The resulting revisions are currently under review.

(iv) Aesthetics

**(Finding)** The new road will improve aesthetics for some and degrade it for others, depending on individual perspective.

(vii) Local government

**(Finding)** The proposed road would not impact use of water by local government.

(viii) Agriculture

***(Finding) The proposed road would not impact the use of water for agriculture.***

(ix) Commerce

***(Finding) The proposed road would not impact use of water by commerce.***

(x) Industry

***(Finding) The proposed road would not impact use of water by industry.***

The department shall not grant a permit if the proposed project or structure will unlawfully impair or destroy any of the waters or other natural resources of the state.

***(Finding) Same as findings under Rule 2(a) of the administrative rules for Part 303, Wetlands Protection, and Rule 4 of the administrative rules for Part 301, Inland Lakes and Streams, below.***

Rule 281.814 Environmental Assessment

Rule 4. In each application for a permit, all existing and potential adverse environmental effects shall be determined and the department shall not issue a permit unless the department determines both of the following:

(a) That the adverse impacts to the public trust, riparian rights, and the environment will be minimal.

***(Finding) The impacts to the public trust and the environment from the proposed road would not be minimal because less damaging alternative routes and construction methods with less aquatic resource impacts for the proposed route may be possible, and the proposed road would impact a significant amount of rare and imperiled wetlands of exceptional quality.***

(b) That a feasible and prudent alternative is not available.

***(Finding) There are likely to be changes that could be incorporated to minimize impacts to aquatic resources, such as additional clear spans of exceptional quality rare wetlands, and a lower profile road design.***

Rule 315, of Part 31, Water Resource Protection, Floodplains, requires that:



- (1) An encroachment in the floodway which, acting alone or in combination with existing or future similar works, may cause harmful interference shall not be approved. In making this determination, an analysis shall be made for a range of discharges up to and including the 100-year flood discharge modified to reflect changes in land use and development reasonably anticipated to occur within the watershed up to twenty years from the date of application.

**Finding:**

**Six of the twenty two stream crossings require a review under the Floodplain Regulatory authority found in Part 31 (Part 31). The department finds that the hydraulic analysis submitted for the six (6) crossings meet the criteria for conducting hydraulic analysis per Rule 315(1). In addition, the hydraulic reports submitted to the MDEQ as part of the application package meet the criteria for conducting and submitting a hydraulic report found in the MDEQ Land and Water Management Division Hydraulic Report Guidelines – October 2006 revision.**

- (2) A bridge or culvert, constructed or reconstructed, shall be capable of passing the 100-year flood without causing harmful interference.

**Finding**

**Rule 323.1311(g) defines harmful interference as causing an increased stage or change in direction of flow that causes, or is likely to cause damage to property, a threat to life or of personal injury, pollution, impairment or destruction of water or other natural resources.**

**The hydraulic reports submitted with the application show that the proposed structure crossing of Mulligan Creek will increase the 100-year flood stage upstream of the proposed crossings by 0.57 feet a distance of 424 feet upstream of the crossing. Affected property owner statements were sent by the applicant to the affected landowner and returned for the Mulligan Creek crossing. The applicants engineer has certified that there will be no harmful interference caused by this increase. The MDEQ concurs with this finding.**

**The hydraulic reports submitted with the application show that the proposed structures crossing of the Middle Branch of the Escanaba will increase the 100-year flood stage upstream of the proposed crossings by 0.10 feet 3,638 feet upstream of the proposed crossing. Affected property owner statements were sent by the applicant to the two affected landowner and one has been returned. The applicant indicated the second statement would be provided when the landowner signs the letter. The applicants engineer has certified that there will be no harmful interference caused by this increase. The MDEQ has not made a determination at this time as to whether this crossing meets the criteria under Part 31 for permit issuance since it has not received the letter from the second affected landowners.**

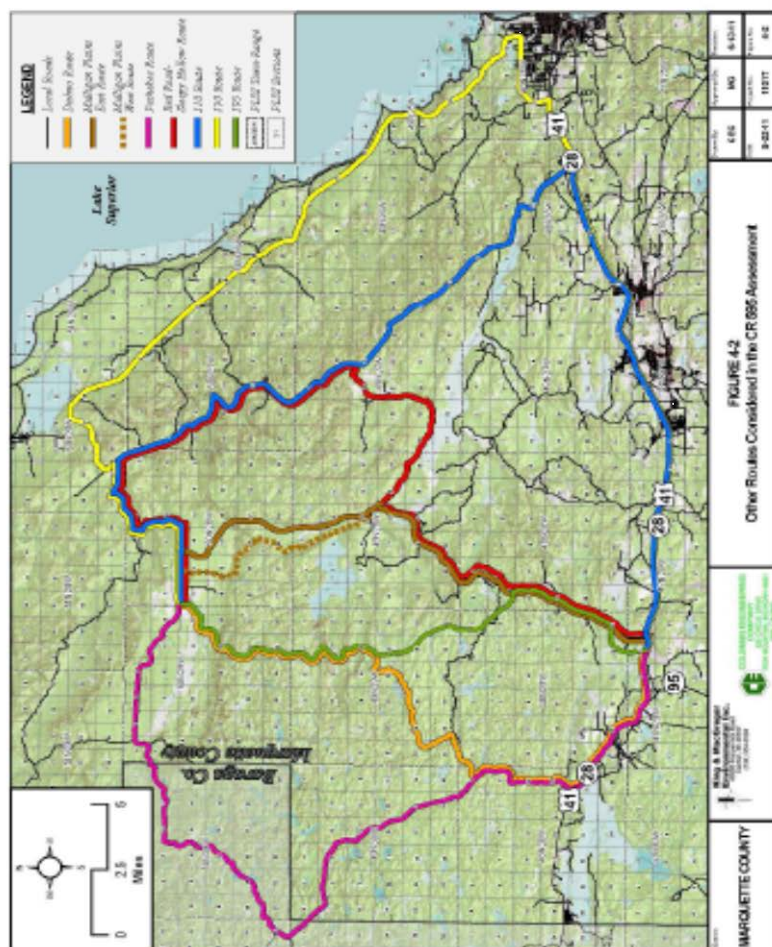
***The hydraulic analysis submitted for the remaining four (4) crossings, Dead River, Yellow Dog and the East Branch Salmon Trout River and Second River indicate that the crossings are capable of passing the 100-year flood without causing harmful interference.***

- (3) An encroachment in the floodplain, landward of the floodway limits, which, acting alone or in combination with existing or future similar works, does not cause harmful interference may be permitted.

***Finding:***

***Based upon the information submitted with the applications, the proposed crossings will involve changing the natural grades within the vicinities of the crossings from approximately 5 feet to 20+ feet above natural grade. The hydraulic modeling demonstrates that the structures will be adequate to convey the flood flows up to the 100-year flood event without harmful interference (increased stage or direction of the flow of the river) or, if not, affected property owner statements were or will be obtained from the affected landowners.***

- (4) An encroachment in the floodplain, landward of the floodway limits, which, acting alone or in combination with existing or future similar works, does not cause harmful interference may be permitted.





## Typical Construction Costs

May 23, 2012

Costs can vary considerably depending on pavement thickness, soil conditions, utility conflicts, storm sewer requirements, land use, terrain, moving dirt or having to blast through rock.

- 1) MDOT US-41 near Baraga- \$2.9 million for 1.5 miles of road (\$1.93 million per mile), included \$260,00 for ROW costs, \$243,00 for engineering
  - Road was offset 0-100 feet
  - 5.5 inches of asphalt- 3 layers
  - Flat terrain
  - 1 cross culvert
  - Included re-building a railroad intersection
- 2) MDOT UP- average cost to reconstruct bituminous paving is \$956,000 per lane mile (or \$1.9 million per mile for a 2 lane road)
- 3) Marquette County- estimated cost to upgrade 0.66 miles of Triple A road is \$1.0 million (or \$1.5 million per mile for a 2 lane road. Includes preliminary engineering and construction engineering costs. Existing road will be reconstructed and upgraded to all season standards. Costs include drainage improvements and horizontal and vertical alignment improvements.
- 4) Marquette County estimated cost to upgrade 0.87 miles of County Road 601 is \$1.8 million (or \$2.1 million per mile). Existing narrow road will be reconstructed/widened to a two-lane all season standard road. Costs included flattening a steep hill, re-aligning 2 sharp curves, and maintaining 2-way traffic during construction
- 5) City of Marquette- McClelland Avenue- \$1.8 million for 0.48 miles of 2 lane road (\$3.8 million per mile)
  - Flat terrain, ½ upland, ½ wetland, wetland excavation for road fill
  - Include curbing and gutter and storm sewer costs, sidewalk, 2 traffic signals, heavy rock in road base, thick pavement for trucking, retaining wall to minimize wetland impacts
  - Does not Include \$100,000 for 2.5 acres of wetland mitigation
  - Includes cost for stream restoration
  - Does not include design costs

**Other County Projects in Lower Peninsula-** asphalt not as thick typically 3-4 inches

- 6) Ingham County- \$400,000-\$600,000 per lane mile for reconstruction (or \$800,000-\$1.2 million for a 2 lane road).
  - Design fees 7-12% of construction costs
  - Construction engineering 8-13% of construction
  - ROW cost varies widely- \$0.35 a sft for rural areas up to \$22 a sft in some urban settings
- 7) Allegan County- \$200,000 per mile on gravel roads with decent soils, minimal dirt movement, add \$140,000 per mile to add 3 inches of asphalt. (\$340,000 per mile)
  - Design fees \$8000 for a consultant
  - ROW 0-\$5,000
  - Estimating about \$1,000,000 for a new 1 mile section of paved all seasons road next year with \$20,000 for design engineering and \$50,000 for ROW.
- 8) Wexford County- (Generally about \$500,000 per mile) for a standard new county road with decent soils, nothing special- not including engineering or ROW.
  - \$300,000-\$400,000 per mile to reconstruct a standard generic road not hills or big cuts, no undercuts or swamp work
  - \$900,000 per mile estimate for a current urban reconstruct job out for bid with a bridge and cul-de-sac
  - \$3 million per mile to reconstruct road in downtown Cadillac
  - \$6 million per mile to build US 131 freeway around Manton not including bridges
- 9) Eaton County- (\$2.6 million bid for new 1 mile section of road), part 3 lane, part 2 lane, some turn lanes and side walks
  - Minimal fill some cut, no culverts or bridges, 6 inches of asphalt
  - Does not include ROW costs- they already owned
  - Includes \$800,000 for sound wall
  - Does not include 10% extra for design
  - Does not include 10-15% extra for construction oversight
- 10) Finkbeiner Road- Barry County rural area- 2 distinct phases (costs include construction, ROW, engineering, construction engineering, did not include staff time or attorney fees)
  - a. \$5.3 million or (\$1.5 million per mile) -3.48 miles of 2 lane rural road reconstruction and upgrade/widening, included 0.37 miles of upgrade of flat two track road section and one large section of wetland fill. About 1 acre of wetland impact.
  - b. \$5.5 million or (\$7.0 million per mile)- 0.79 miles of 2 lane road includes 0.47 of new road with about 20 feet of fill, 250 feet 2 span bridge and a 145 foot single span bridge.. About 0.5 acres of wetland impact

- 11) **Federal Highway Administration**- cost based on 2003 report adjusted for 2006 dollar, differences in factors include terrain type, rural versus Urban, high cost versus low cost state, concrete versus asphalt, pavement thickness, new construction versus adding new lanes. Costs include bridges, interchanges, and environmental issues for a normal project.
- a. Adding a single lane to an existing highway in rural areas- \$1.6 million to \$3.1 million per lane mile (\$3.2 million to \$6.2 million per mile for a 2 lane section).
  - b. New construction- the cost to construct one lane mile of a typical 4 lane divided highway in a rural area is \$3.1 million - \$9.1 million per lane mile (\$6.2 million to \$18.2 million per mile for a 2 lane section).